

aat gag gaa aaa gaa aat aat aga gca tcc aag ccc cac tcc act cct	309
Asn Glu Glu Lys Glu Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro	
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gct act ctg caa tgg ctg gag gag aac tat gag att gca gag ggg gtc	357
Ala Thr Leu Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val	
70 75 80	
tgc atc cct cgc agt gcc ctc tat atg cat tac ctg gat ttc tgc gag	405
Cys Ile Pro Arg Ser Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu	
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Lys Asn Asp Thr Gln Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile	
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agg cag cag ttt cct cag tta acc acc aga aga ctc ggg acc cga gga	501
Arg Gln Gln Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly	
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cag tca aag tac cat tac tat ggc att gca gtg aaa gaa agc tcc caa	549
Gln Ser Lys Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln	
135 140 145	
tat tat gat gtg atg tat tcc aag aaa gga gct gcc tgg gtg agt gag	597
Tyr Tyr Asp Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu	
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acg ggc aag aaa gaa gtg agc aaa cag aca gtg gca tat tca ccc cgg	645
Thr Gly Lys Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg	
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tcc aaa ctc gga aca ctg ctg cca gaa ttt ccc aat gtc aaa gat cta	693
Ser Lys Leu Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu	
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aat ctg cca gcc agc ctg cct gag gag aag gtt tct acc ttt att atg	741
Asn Leu Pro Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met	
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atg tac aga aca cac tgt cag aga ata ctg gac act gta ata aga gcc	789
Met Tyr Arg Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala	
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Asn Phe Asp Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met	
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ccg ccc cac atg ctg cct gtg ctg ggc tcc tcc acg gtg gtg aac att	885
Pro Pro His Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile	
245 250 255 260	
gtc ggc gtg tgt gac tcc atc ctc tac aaa gct atc tcc ggg gtg ctg	933
Val Gly Val Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu	
265 270 275	
atg ccc act gtg ctg cag gca tta cct gac agc tta act cag gtg att	981

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cga	aag	ttt	gcc	aag	caa	ctg	gat	gag	tgg	cta	aaa	gtg	gct	ctc	cac	1029
Arg	Lys	Phe	Ala	Lys	Gln	Leu	Asp	Glu	Trp	Leu	Lys	Val	Ala	Leu	His	
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gac	ctc	cca	gaa	aac	ttg	cga	aac	atc	aag	ttc	gaa	ttg	tcg	aga	agg	1077
Asp	Leu	Pro	Glu	Asn	Leu	Arg	Asn	Ile	Lys	Phe	Glu	Leu	Ser	Arg	Arg	
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ttc	tcc	caa	att	ctg	aga	cgg	caa	aca	tca	cta	aat	cat	ctc	tgc	cag	1125
Phe	Ser	Gln	Ile	Leu	Arg	Arg	Gln	Thr	Ser	Leu	Asn	His	Leu	Cys	Gln	
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gca	tct	cga	aca	gtg	atc	cac	agt	gca	gac	atc	acg	ttc	caa	atg	ctg	1173
Ala	Ser	Arg	Thr	Val	Ile	His	Ser	Ala	Asp	Ile	Thr	Phe	Gln	Met	Leu	
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gaa	gac	tgg	agg	aac	gtg	gac	ctg	aac	agc	atc	acc	aag	caa	acc	ctt	1221
Glu	Asp	Trp	Arg	Asn	Val	Asp	Leu	Asn	Ser	Ile	Thr	Lys	Gln	Thr	Leu	
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tac	acc	atg	gaa	gac	tct	cgc	gat	gag	cac	cgg	aaa	ctc	atc	acc	caa	1269
Tyr	Thr	Met	Glu	Asp	Ser	Arg	Asp	Glu	His	Arg	Lys	Leu	Ile	Thr	Gln	
		375					380					385				
tta	tat	cag	gag	ttt	gac	cat	ctc	ttg	gag	gag	cag	tct	ccc	atc	gag	1317
Leu	Tyr	Gln	Glu	Phe	Asp	His	Leu	Leu	Glu	Glu	Gln	Ser	Pro	Ile	Glu	
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Ser	Tyr	Ile	Glu	Trp	Leu	Asp	Thr	Met	Val	Asp	Arg	Cys	Val	Val	Lys	
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gtg	gct	gcc	aag	aga	caa	ggg	tcc	ttg	aag	aaa	gtg	gcc	cag	cag	ttc	1413
Val	Ala	Ala	Lys	Arg	Gln	Gly	Ser	Leu	Lys	Lys	Val	Ala	Gln	Gln	Phe	
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ctc	ttg	atg	tgg	tcc	tgt	ttc	ggc	aca	agg	gtg	atc	cgg	gac	atg	acc	1461
Leu	Leu	Met	Trp	Ser	Cys	Phe	Gly	Thr	Arg	Val	Ile	Arg	Asp	Met	Thr	
			440					445					450			
ttg	cac	agc	gcc	ccc	agc	ttc	ggg	tct	ttt	cac	cta	att	cac	tta	atg	1509
Leu	His	Ser	Ala	Pro	Ser	Phe	Gly	Ser	Phe	His	Leu	Ile	His	Leu	Met	
		455					460					465				
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Phe	Asp	Asp	Tyr	Val	Leu	Tyr	Leu	Leu	Glu	Ser	Leu	His	Cys	Gln	Glu	
	470					475					480					
cgg	gcc	aat	gag	ctc	atg	cga	gcc	atg	aag	gga	gaa	gga	agc	act	gca	1605
Arg	Ala	Asn	Glu	Leu	Met	Arg	Ala	Met	Lys	Gly	Glu	Gly	Ser	Thr	Ala	
485					490					495					500	
gaa	gtc	cga	gaa	gag	atc	atc	ttg	aca	gag	gct	gcc	gca	cca	acc	cct	1653
Glu	Val	Arg	Glu	Glu	Ile	Ile	Leu	Thr	Glu	Ala	Ala	Ala	Pro	Thr	Pro	

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Ser Pro Val Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu			
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gtg cca cct ccc tct tcc cct gtt agc aat cct tcc cct gag tac act			1749
Val Pro Pro Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr			
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ggc ctc agc act aca ggt aat gga aag tcc ttc aaa aac ttt ggg tag			1797
Gly Leu Ser Thr Thr Gly Asn Gly Lys Ser Phe Lys Asn Phe Gly			
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cacacacaaa aagccagaca tcttggtca cacctgtagt ccagctact tgggaggctg			1917
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Ser Asn Asp Glu Asn Glu Glu Lys Glu Asn Asn Arg Ala Ser Lys Pro
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His Ser Thr Pro Ala Thr Leu Gln Trp Leu Glu Glu Asn Tyr Glu Ile
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Ala Glu Gly Val Cys Ile Pro Arg Ser Ala Leu Tyr Met His Tyr Leu

85

90

95

Asp Phe Cys Glu Lys Asn Asp Thr Gln Pro Val Asn Ala Ala Ser Phe
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Gly Lys Ile Ile Arg Gln Gln Phe Pro Gln Leu Thr Thr Arg Arg Leu
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Gly Thr Arg Gly Gln Ser Lys Tyr His Tyr Tyr Gly Ile Ala Val Lys
 130 135 140

Glu Ser Ser Gln Tyr Tyr Asp Val Met Tyr Ser Lys Lys Gly Ala Ala
 145 150 155 160

Trp Val Ser Glu Thr Gly Lys Lys Glu Val Ser Lys Gln Thr Val Ala
 165 170 175

Tyr Ser Pro Arg Ser Lys Leu Gly Thr Leu Leu Pro Glu Phe Pro Asn
 180 185 190

Val Lys Asp Leu Asn Leu Pro Ala Ser Leu Pro Glu Glu Lys Val Ser
 195 200 205

Thr Phe Ile Met Met Tyr Arg Thr His Cys Gln Arg Ile Leu Asp Thr
 210 215 220

Val Ile Arg Ala Asn Phe Asp Glu Val Gln Ser Phe Leu Leu His Phe
 225 230 235 240

Trp Gln Gly Met Pro Pro His Met Leu Pro Val Leu Gly Ser Ser Thr
 245 250 255

Val Val Asn Ile Val Gly Val Cys Asp Ser Ile Leu Tyr Lys Ala Ile
 260 265 270

Ser Gly Val Leu Met Pro Thr Val Leu Gln Ala Leu Pro Asp Ser Leu
 275 280 285

Thr Gln Val Ile Arg Lys Phe Ala Lys Gln Leu Asp Glu Trp Leu Lys
 290 295 300

Val Ala Leu His Asp Leu Pro Glu Asn Leu Arg Asn Ile Lys Phe Glu
 305 310 315 320

Leu Ser Arg Arg Phe Ser Gln Ile Leu Arg Arg Gln Thr Ser Leu Asn
325 330 335

His Leu Cys Gln Ala Ser Arg Thr Val Ile His Ser Ala Asp Ile Thr
340 345 350

Phe Gln Met Leu Glu Asp Trp Arg Asn Val Asp Leu Asn Ser Ile Thr
355 360 365

Lys Gln Thr Leu Tyr Thr Met Glu Asp Ser Arg Asp Glu His Arg Lys
370 375 380

Leu Ile Thr Gln Leu Tyr Gln Glu Phe Asp His Leu Leu Glu Glu Gln
385 390 395 400

Ser Pro Ile Glu Ser Tyr Ile Glu Trp Leu Asp Thr Met Val Asp Arg
405 410 415

Cys Val Val Lys Val Ala Ala Lys Arg Gln Gly Ser Leu Lys Lys Val
420 425 430

Ala Gln Gln Phe Leu Leu Met Trp Ser Cys Phe Gly Thr Arg Val Ile
435 440 445

Arg Asp Met Thr Leu His Ser Ala Pro Ser Phe Gly Ser Phe His Leu
450 455 460

Ile His Leu Met Phe Asp Asp Tyr Val Leu Tyr Leu Leu Glu Ser Leu
465 470 475 480

His Cys Gln Glu Arg Ala Asn Glu Leu Met Arg Ala Met Lys Gly Glu
485 490 495

Gly Ser Thr Ala Glu Val Arg Glu Glu Ile Ile Leu Thr Glu Ala Ala
500 505 510

Ala Pro Thr Pro Ser Pro Val Pro Ser Phe Ser Pro Ala Lys Ser Ala
515 520 525

Thr Ser Val Glu Val Pro Pro Pro Ser Ser Pro Val Ser Asn Pro Ser
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Pro Glu Tyr Thr Gly Leu Ser Thr Thr Gly Asn Gly Lys Ser Phe Lys
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Asn Phe Gly

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 Met Asn Trp
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 gct gcc ttc gga ggg tct gaa ttc ttc atc cca gaa ggc att cag ata 166
 Ala Ala Phe Gly Gly Ser Glu Phe Phe Ile Pro Glu Gly Ile Gln Ile
 5 10 15
 gat tcg aga tgc cca cta agc aga aat atc acg gaa tgg tac cat tac 214
 Asp Ser Arg Cys Pro Leu Ser Arg Asn Ile Thr Glu Trp Tyr His Tyr
 20 25 30 35
 tat ggc att gca gtg aaa gaa agc tcc caa tat tat gat gtg atg tat 262
 Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met Tyr
 40 45 50
 tcc aag aaa gga gct gcc tgg gtg agt gag acg ggc aag aaa gaa gtg 310
 Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys Lys Glu Val
 55 60 65
 agc aaa cag aca gtg gca tat tca ccc cgg tcc aaa ctc gga aca ctg 358
 Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu Gly Thr Leu
 70 75 80
 ctg cca gaa ttt ccc aat gtc aaa gat cta aat ctg cca gcc agc ctg 406
 Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser Leu
 85 90 95
 cct gag gag aag gtt tct acc ttt att atg atg tac aga aca cac tgt 454
 Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg Thr His Cys
 100 105 110 115
 cag aga ata ctg gac act gta ata aga gcc aac ttt gat gag gtt caa 502
 Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val Gln
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agt ttc ctt ctg cac ttt tgg caa gga atg ccg ccc cac atg ctg cct	550
Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His Met Leu Pro	
135 140 145	
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Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp Ser	
150 155 160	
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Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr Val Leu Gln	
165 170 175	
gca tta cct gac agc tta act cag gtg att cga aag ttt gcc aag caa	694
Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe Ala Lys Gln	
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Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro Glu Asn Leu	
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Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln Ile Leu Arg	
215 220 225	
cgg caa aca tca cta aat cat ctc tgc cag gca tct cga aca gtg atc	838
Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg Thr Val Ile	
230 235 240	
cac agt gca gac atc acg ttc caa atg ctg gaa gac tgg agg aac gtg	886
His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn Val	
245 250 255	
gac ctg aac agc atc acc aag caa acc ctt tac acc atg gaa gac tct	934
Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met Glu Asp Ser	
260 265 270 275	
cgc gat gag cac cgg aaa ctc atc acc caa tta tat cag gag ttt gac	982
Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln Glu Phe Asp	
280 285 290	
cat ctc ttg gag gag cag tct ccc atc gag tcc tac att gag tgg ctg	1030
His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile Glu Trp Leu	
295 300 305	
gat acc atg gtt gac cgc tgt gtt gtg aag gtg gct gcc aag aga cga	1078
Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala Lys Arg Arg	
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Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met Trp Ser Cys	
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Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser Ala Pro Ser	
340 345 350 355	

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cga gcc atg aag gga gaa gga agc act gca gaa gtc cga gaa gag atc Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg Glu Glu Ile 390 395 400	1318
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tct cca gca aaa tct gcc aca tct gtg gaa gtg cca cct ccc tct tcc Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro Pro Ser Ser 420 425 430 435	1414
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gct ggg tcc cca gct gag aac tcc caa cag ctg ccc tgt atg agg aac Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys Met Arg Asn 470 475 480	1558
act cac gtg cct tct tcc tcc gtc aca cac agg ata cca gtt tat ccc Thr His Val Pro Ser Ser Ser Val Thr His Arg Ile Pro Val Tyr Pro 485 490 495	1606
cac aga gag gaa cat gga tac acg gga agc tat aac tat ggg agc tat His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr Gly Ser Tyr 500 505 510 515	1654
ggc aac cag cat cct cac ccc atg cag agc cag tat ccg gcc ctc cct Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro Ala Leu Pro 520 525 530	1702
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Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr Asn Pro Ser	
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Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr Thr Pro Leu	
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aca acg cgc agg aat tct gaa tat gag cac atg caa cac ttt cct ggc	1990
Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His Phe Pro Gly	
615 620 625	
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Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly Trp Ala Lys	
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gttctgtaaa taaaatcttt gatcacacca ctcagtgtga taattgtgtc tacagctaaa	3295

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aaatattgaa cccccaaaaa aaaaaaaa 3382

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Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp
35 40 45

Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys
50 55 60

Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu
65 70 75 80

Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro
85 90 95

Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg
100 105 110

Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp
115 120 125

Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His
130 135 140

Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val
145 150 155 160

Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr
165 170 175

Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe

180	185	190
Ala Lys Gln Leu Asp Glu Trp	Leu Lys Val Ala Leu His Asp Leu Pro	
195	200	205
Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln		
210	215	220
Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg		
225	230	235
Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp		
	245	250
Arg Asn Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met		
	260	265
Glu Asp Ser Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln		
	275	280
Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile		
	290	295
Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala		
305	310	315
Lys Arg Arg Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met		
	325	330
Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser		
	340	345
Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp		
	355	360
Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn		
	370	375
Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg		
385	390	395
Glu Glu Ile Ile Leu Thr Glu Ala Ala Ala Pro Thr Pro Ser Pro Val		
	405	410
		415

Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro
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Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser
435 440 445

Thr Thr Gly Ala Met Gln Ala Tyr Thr Trp Ser Leu Thr Tyr Thr Val
450 455 460

Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys
465 470 475 480

Met Arg Asn Thr His Val Pro Ser Ser Ser Val Thr His Arg Ile Pro
485 490 495

Val Tyr Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr
500 505 510

Gly Ser Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro
515 520 525

Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro
530 535 540

Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg
545 550 555 560

Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro
565 570 575

Val Thr Pro Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr
580 585 590

Asn Pro Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr
595 600 605

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tctagcacag gggatcccca aatatcagga cttttggggg gcgtctgtgc tgtccatggg 300
aagagc atg cat tgt ggg tta ctg gag gaa ccc gac atg gat tcc aca 348
Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr
1 5 10
gag agc tgg att gaa aga tgt ctc aat gaa agc gag aat aaa cgc tat 396
Glu Ser Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr
15 20 25 30
tcc agt cac aca tct ctg ggg aat gtg tct aat gat gaa aat gag gaa 444
Ser Ser His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu
35 40 45
aaa gaa aat aac aga gca tcc aag ccc cac tcc acg ccg gcc acc ctg 492
Lys Glu Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu
50 55 60
caa tgg ctg gag gaa aac tat gag att gct gag ggc gtc tgc atc ccc 540
Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro
65 70 75
cgc agc gcc ctc tac atg cac tac ctg gat ttc tgt gag aag aac gac 588
Arg Ser Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp
80 85 90
act cag cct gtc aat gct gcc agc ttt ggg aag atc ata agg cag cag 636
Thr Gln Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln
95 100 105 110
ttt cct cag cta acc acc aga aga ctc ggg acc ggg acc cga gga cag 684
Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly Thr Gly Thr Arg Gly Gln
115 120 125

tca aag tac cat tac tat ggc ata gcg gtg aag gag agc tcc cag tat	732
Ser Lys Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr	
130 135 140	
tat gat gtg atg tac tca aag aaa gga gct gcc tgg gtg agc gag acg	780
Tyr Asp Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr	
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ggc aag aga gaa gtc acc aag cag acg gtg gca tat tct ccc cgg tcc	828
Gly Lys Arg Glu Val Thr Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser	
160 165 170	
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Lys Leu Gly Thr Leu Leu Pro Asp Phe Pro Asn Val Lys Asp Leu Asn	
175 180 185 190	
ctg cca gcc agt ctt cct gag gag aag gtg tct acc ttt att atg atg	924
Leu Pro Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met	
195 200 205	
tac aga aca cac tgt cag aga ata ctg gac act gta ata aga gcc aac	972
Tyr Arg Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn	
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ttt gat gag gtt caa agt ttc ctt ctg cac ttt tgg caa ggg atg ccg	1020
Phe Asp Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro	
225 230 235	
ccc cac atg ctg ccc gtg cta ggc tcc tcc acg gtg gtg aac atc gtg	1068
Pro His Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val	
240 245 250	
ggt gtg tgt gac tcc atc ctc tac aaa gcc atc tcc ggt gtg ttg atg	1116
Gly Val Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met	
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ccc acg gtg ctg cag gcg ttg ccg gac agc tta act cag gtg atc cga	1164
Pro Thr Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg	
275 280 285	
aag ttt gcc aag cag ctg gac gag tgg ctg aaa gtg gct ctc cac gat	1212
Lys Phe Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp	
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ctc ccg gaa aac ctg aga aac atc aaa ttt gaa tta tca agg agg ttt	1260
Leu Pro Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe	
305 310 315	
tcc caa atc cta agg agg caa aca tcg ctg aac cat ctg tgc cag gca	1308
Ser Gln Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala	
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Ser Arg Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu	
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acc atg gag gac tct cgg gat gag cac cgc aga ctc atc atc cag ttg	1452
Thr Met Glu Asp Ser Arg Asp Glu His Arg Arg Leu Ile Ile Gln Leu	
370 375 380	
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Tyr Gln Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser	
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Tyr Ile Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val	
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gct gcc aag aga caa ggg tct ctg aag aaa gta gcc caa cag ttc ctg	1596
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Leu Met Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu	
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cac agt gcc ccc agc ttc ggg tct ttt cac ctg att cac ctg atg ttc	1692
His Ser Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe	
450 455 460	
gac gac tac gtg ctc tac ttg cta gaa tct ctg cat tgt cag gag cgg	1740
Asp Asp Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg	
465 470 475	
gcc aac gag ctc atg cga gcc atg aaa gga gaa gga agc act gca gaa	1788
Ala Asn Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu	
480 485 490	
gcc cag gaa gag att atc ttg aca gag gct acc cca cca acc cct tca	1836
Ala Gln Glu Glu Ile Ile Leu Thr Glu Ala Thr Pro Pro Thr Pro Ser	
495 500 505 510	
cct ggt cca tca ttt tct cca gca aag tct gcc aca tct gtg gag gtg	1884
Pro Gly Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val	
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ctt agc aca gca gga gcg atg cag tca tat acg tgg tcg cta aca tat	1980
Leu Ser Thr Ala Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr	
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Thr Val Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu	
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ccc tgt atg agg agc acc cat atg cct tct tcc tcc gtc aca cac agg	2076

Pro Cys Met Arg Ser Thr His Met Pro Ser Ser Ser Val Thr His Arg	
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Ile Pro Val Tyr Ser His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr	
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aac tac ggg agc tat ggc aac cag cat cct cac cca ctg cag aac cag	2172
Asn Tyr Gly Ser Tyr Gly Asn Gln His Pro His Pro Leu Gln Asn Gln	
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Tyr Pro Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr	
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Ser Pro Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr	
640 645 650	
tcc agg atg gaa cct tgt ttg atg agc agt act ccc agg ctg cat cct	2316
Ser Arg Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro	
655 660 665 670	
acc cca gtg act ccc cga tgg cca gag gtg ccg act gcc aac gca tgc	2364
Thr Pro Val Thr Pro Arg Trp Pro Glu Val Pro Thr Ala Asn Ala Cys	
675 680 685	
tac aca agc cca tct gtg cat tcc acg agg tat gga aac tct agt gac	2412
Tyr Thr Ser Pro Ser Val His Ser Thr Arg Tyr Gly Asn Ser Ser Asp	
690 695 700	
atg tac acc ccg ctg acc acg cgc agg aat tct gag tat gag cac atg	2460
Met Tyr Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met	
705 710 715	
caa cac ttt cct ggc ttt gct tac atc aac gga gag gcc tcc act gga	2508
Gln His Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly	
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tgg gct aag tga ctgctttcat agaaaatccat atttaatat aataattaat	2560
Trp Ala Lys	
735	
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cgggctgacc taagcatcca ttctcctaata gaacaagagg atgttcaatg tggagtgaat	2680
agacttttagt tcagaaacag gagtcactaa aagtcagtgg gattggggttt ctgtagccaa	2740
gccagacttg actgtttcta tagagcacta tcttggggcag gccaatctgt gcctttcccc	2800
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35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp
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Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ser
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Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp Thr Gln
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Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro
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Gln Leu Thr Thr Arg Arg Leu Gly Thr Gly Thr Arg Gly Gln Ser Lys
115 120 125

Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp
130 135 140

Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys
145 150 155 160

Arg Glu Val Thr Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu
165 170 175

Gly Thr Leu Leu Pro Asp Phe Pro Asn Val Lys Asp Leu Asn Leu Pro
180 185 190

Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg
195 200 205

Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp

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Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His		
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Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val		
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Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr		
	260	265 270
Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe		
	275	280 285
Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro		
	290	295 300
Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln		
305	310	315 320
Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg		
	325	330 335
Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp		
	340	345 350
Arg Asn Val Asp Leu Ser Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met		
	355	360 365
Glu Asp Ser Arg Asp Glu His Arg Arg Leu Ile Ile Gln Leu Tyr Gln		
	370	375 380
Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile		
385	390	395 400
Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala		
	405	410 415
Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met		
	420	425 430
Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser		
	435	440 445

Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp
 450 455 460

Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn
 465 470 475 480

Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Ala Gln
 485 490 495

Glu Glu Ile Ile Leu Thr Glu Ala Thr Pro Pro Thr Pro Ser Pro Gly
 500 505 510

Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro
 515 520 525

Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser
 530 535 540

Thr Ala Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val
 545 550 555 560

Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys
 565 570 575

Met Arg Ser Thr His Met Pro Ser Ser Ser Val Thr His Arg Ile Pro
 580 585 590

Val Tyr Ser His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr
 595 600 605

Gly Ser Tyr Gly Asn Gln His Pro His Pro Leu Gln Asn Gln Tyr Pro
 610 615 620

Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ser Pro
 625 630 635 640

Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg
 645 650 655

Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro
 660 665 670

Val Thr Pro Arg Trp Pro Glu Val Pro Thr Ala Asn Ala Cys Tyr Thr
675 680 685

Ser Pro Ser Val His Ser Thr Arg Tyr Gly Asn Ser Ser Asp Met Tyr
690 695 700

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Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr
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gag agc tgg att gaa aga tgt ctc aac gaa agt gaa aac aaa cgt tat 157
Glu Ser Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr
15 20 25 30
tcc agc cac aca tct ctg ggg aat gtt tct aat gat gaa aat gag gaa 205
Ser Ser His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu
35 40 45
aaa gaa aat aat aga gca tcc aag ccc cac tcc act cct gct act ctg 253
Lys Glu Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu
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caa tgg ctg gag gag aac tat gag att gca gag ggg gtc tgc atc cct 301
Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro
65 70 75
cgc agt gcc ctc tat atg cat tac ctg gat ttc tgc gag aag aat gat 349
Arg Ser Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp
80 85 90

acc caa cct gtc aat gct gcc agc ttt gga aag atc ata agg cag cag	397
Thr Gln Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln	
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ttt cct cag tta acc acc aga aga ctc ggg acc cga gga cag tca aag	445
Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys	
115 120 125	
tac cat tac tat ggc att gca gtg aaa gaa agc tcc caa tat tat gat	493
Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp	
130 135 140	
gtg atg tat tcc aag aaa gga gct gcc tgg gtg agt gag acg ggc aag	541
Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys	
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Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu	
160 165 170	
gga aca ctg ctg cca gaa ttt ccc aat gtc aaa gat cta aat ctg cca	637
Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro	
175 180 185 190	
gcc agc ctg cct gag gag aag gtt tct acc ttt att atg atg tac aga	685
Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg	
195 200 205	
aca cac tgt cag aga ata ctg gac act gta ata aga gcc aac ttt gat	733
Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp	
210 215 220	
gag gtt caa agt ttc ctt ctg cac ttt tgg caa gga atg ccg ccc cac	781
Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His	
225 230 235	
atg ctg cct gtg ctg ggc tcc tcc acg gtg gtg aac att gtc ggc gtg	829
Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val	
240 245 250	
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Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr	
255 260 265 270	
gtg ctg cag gca tta cct gac agc tta act cag gtg att cga aag ttt	925
Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe	
275 280 285	
gcc aag caa ctg gat gag tgg cta aaa gtg gct ctc cac gac ctc cca	973
Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro	
290 295 300	
gaa aac ttg cga aac atc aag ttc gaa ttg tcg aga agg ttc tcc caa	1021
Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln	
305 310 315	

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aag aga caa ggg tcc ttg aag aaa gtg gcc cag cag ttc ctc ttg atg Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met 415 420 425 430	1357
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gaa gag atc atc ttg aca gag gct gcc gca cca acc cct tca cca gtg Glu Glu Ile Ile Leu Thr Glu Ala Ala Ala Pro Thr Pro Ser Pro Val 495 500 505 510	1597
cca tcg ttt tct cca gca aaa tct gcc aca tct atg gaa gtg cca cct Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Met Glu Val Pro Pro 515 520 525	1645
ccc tct tcc cct gtt agc aat cct tcc cct gag tac act ggc ctc agc Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser 530 535 540	1693
act aca gga gca atg cag tct tac acg tgg tct cta aca tac aca gtg	1741

Thr Thr Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val	
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Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys	
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atg agg aac act cat gtg cct tct tcc tcc gtc aca cac agg ata cca	1837
Met Arg Asn Thr His Val Pro Ser Ser Ser Val Thr His Arg Ile Pro	
575 580 585 590	
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Val Tyr Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr	
595 600 605	
ggg agc tat ggc aac cag cat cct cac ccc atg cag agc cag tat ccg	1933
Gly Ser Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro	
610 615 620	
gcc ctc cct cat gac aca gct atc tct ggg cca ctc cac tat gcc cct	1981
Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro	
625 630 635	
tac cac agg agc tct gca cag tac cct ttt aat agc ccc act tcc cg	2029
Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg	
640 645 650	
atg gaa cct tgt ttg atg agc agt act ccc aga ctg cat cct acc cca	2077
Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro	
655 660 665 670	
gtc act ccc cgc tgg cca gag gtg ccc tca gcc aac acg tgc tac aca	2125
Val Thr Pro Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr	
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agc ccg tct gtg cat tct gcg agg tac gga aac tct agt gac atg tat	2173
Ser Pro Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr	
690 695 700	
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Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His	
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Lys	
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<212> PRT
<213> Homo sapiens

<400> 8

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Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr Ser Ser
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His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu Lys Glu
35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp
 50 55 60

Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ser
 65 70 75 80

Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp Thr Gln
 85 90 95

Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro
 100 105 110

Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys Tyr His
 115 120 125

Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met
 130 135 140

Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys Lys Glu
 145 150 155 160

Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu Gly Thr
 165 170 175

Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser
 180 185 190

Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg Thr His
 195 200 205

Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val
 210 215 220

Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His Met Leu
 225 230 235 240

Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp
 245 250 255

Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr Val Leu
 260 265 270

Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe Ala Lys
275 280 285

Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro Glu Asn
290 295 300

Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln Ile Leu
305 310 315 320

Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg Thr Val
325 330 335

Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn
340 345 350

Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met Glu Asp
355 360 365

Ser Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln Glu Phe
370 375 380

Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile Glu Trp
385 390 395 400

Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala Lys Arg
405 410 415

Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met Trp Ser
420 425 430

Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser Ala Pro
435 440 445

Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp Tyr Val
450 455 460

Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn Glu Leu
465 470 475 480

Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg Glu Glu
485 490 495

Ile Ile Leu Thr Glu Ala Ala Ala Pro Thr Pro Ser Pro Val Pro Ser

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Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser Thr Thr		
530	535	540
Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val Thr Thr		
545	550	555
Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys Met Arg		
565	570	575
Asn Thr His Val Pro Ser Ser Ser Val Thr His Arg Ile Pro Val Tyr		
580	585	590
Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr Gly Ser		
595	600	605
Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro Ala Leu		
610	615	620
Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro Tyr His		
625	630	635
Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg Met Glu		
645	650	655
Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro Val Thr		
660	665	670
Pro Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr Ser Pro		
675	680	685
Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr Thr Pro		
690	695	700
Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His Phe Pro		
705	710	715
Gly Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly Trp Ala Lys		
725	730	735

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 <212> DNA
 <213> Danio rerio

<220>
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 Met Leu Cys Gly Leu Leu Glu Glu
 1 5
 cct gac atg gat tcc aca gag agc tgg att gaa aga tgt ctg aac gaa 160
 Pro Asp Met Asp Ser Thr Glu Ser Trp Ile Glu Arg Cys Leu Asn Glu
 10 15 20
 agc gag agc aag cgc ttc tcc agc cac tct tct att gga aat att tcc 208
 Ser Glu Ser Lys Arg Phe Ser Ser His Ser Ser Ile Gly Asn Ile Ser
 25 30 35 40
 aac gac gaa aac gaa gag aag gaa aat aac cga gca tct aag cca cat 256
 Asn Asp Glu Asn Glu Glu Lys Glu Asn Asn Arg Ala Ser Lys Pro His
 45 50 55
 tca aca cct gct aca tta caa tgg ttg gag gag aac tac gag atc gca 304
 Ser Thr Pro Ala Thr Leu Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala
 60 65 70
 gag ggt gtg tgt att cct cgc atc gcc ctg tac atg cac tac ctg gac 352
 Glu Gly Val Cys Ile Pro Arg Ile Ala Leu Tyr Met His Tyr Leu Asp
 75 80 85
 ttc tgc gaa aaa ctg gac tca cag cca gtc aat gct gca agc ttc gga 400
 Phe Cys Glu Lys Leu Asp Ser Gln Pro Val Asn Ala Ala Ser Phe Gly
 90 95 100
 aag ata ata agg cag cag ttt cct cag ttg acc acg cgg aga tta gga 448
 Lys Ile Ile Arg Gln Gln Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly
 105 110 115 120
 act aga ggt caa tca aag tat cat tac tat ggc atc gca gtg aag gag 496
 Thr Arg Gly Gln Ser Lys Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu
 125 130 135
 agc tcc cag tac tac gat gtg atg tac tct aaa aag ggc gct gcg tgg 544
 Ser Ser Gln Tyr Tyr Asp Val Met Tyr Ser Lys Lys Gly Ala Ala Trp
 140 145 150
 gtg aac gag acg ggc aag aaa gag gtc acc aaa cag aca gta gcg tat 592
 Val Asn Glu Thr Gly Lys Lys Glu Val Thr Lys Gln Thr Val Ala Tyr

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tca ccg cgc tcc aag ctg ggc act ctc ctg cca gac ttt cca aat gtc Ser Pro Arg Ser Lys Leu Gly Thr Leu Leu Pro Asp Phe Pro Asn Val 170 175 180			640
aaa gac cta aat ctg ccc gcc agt ctg cca gag gag aag gtc tcg acc Lys Asp Leu Asn Leu Pro Ala Ser Leu Pro Glu Glu Lys Val Ser Thr 185 190 195 200			688
ttt att atg atg tac aga act cac tgc cag agg ata ctg gat act gtc Phe Ile Met Met Tyr Arg Thr His Cys Gln Arg Ile Leu Asp Thr Val 205 210 215			736
ata cgc gcc aac ttc gat gag gtt cag agc ttc ctg ttg cac ttt tgg Ile Arg Ala Asn Phe Asp Glu Val Gln Ser Phe Leu Leu His Phe Trp 220 225 230			784
cag ggc atg ccg ccc cac atg ctc cct gtc ctg ggc tct tct aca gtg Gln Gly Met Pro Pro His Met Leu Pro Val Leu Gly Ser Ser Thr Val 235 240 245			832
gtc aac ata gtg ggt gtg tgt gac tcc ata ttg tac aag gcc atc tca Val Asn Ile Val Gly Val Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser 250 255 260			880
ggc gtc ctc atg ccc acc gtc cta caa gct ctg cct gac agc ctc act Gly Val Leu Met Pro Thr Val Leu Gln Ala Leu Pro Asp Ser Leu Thr 265 270 275 280			928
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gct tta cat gac ctg ccc gaa aac ctg cgc aac att aag ttt gaa ttg Ala Leu His Asp Leu Pro Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu 300 305 310			1024
tca aga aga ttt tct cag att ctc aaa cga caa aca tca tta aac cac Ser Arg Arg Phe Ser Gln Ile Leu Lys Arg Gln Thr Ser Leu Asn His 315 320 325			1072
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caa act ctt tat act atg gaa gac tcc aga gaa gac cag agg aga ctc Gln Thr Leu Tyr Thr Met Glu Asp Ser Arg Glu Asp Gln Arg Arg Leu 365 370 375			1216
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cca att gaa gcc tac atc gag tgg ctg gac tct atg gtg gag aga tgt	1312
Pro Ile Glu Ala Tyr Ile Glu Trp Leu Asp Ser Met Val Glu Arg Cys	
395 400 405	
gtt gtg agg gtg gcg ggg aag aga ccc gga tct ctg aag agg gta gct	1360
Val Val Arg Val Ala Gly Lys Arg Pro Gly Ser Leu Lys Arg Val Ala	
410 415 420	
cag cag ttc ctg ctc atg tgg tcg tgt ttt ggg aca aga gtt atc cgg	1408
Gln Gln Phe Leu Leu Met Trp Ser Cys Phe Gly Thr Arg Val Ile Arg	
425 430 435 440	
gat atg acg ctg cat agt gca cca agc ttt ggc tcg ttc cat ctg att	1456
Asp Met Thr Leu His Ser Ala Pro Ser Phe Gly Ser Phe His Leu Ile	
445 450 455	
cac ctc atg ttt gat gac tat gta ctt tac ctg ctt gaa tct ctg cac	1504
His Leu Met Phe Asp Asp Tyr Val Leu Tyr Leu Leu Glu Ser Leu His	
460 465 470	
tgc caa gag aga gcc aat gaa ctg atg agg gcg atg aaa gga gag ggc	1552
Cys Gln Glu Arg Ala Asn Glu Leu Met Arg Ala Met Lys Gly Glu Gly	
475 480 485	
gca cca gca gat act gga gaa gag ctg atg ctg atg agc tcc act cca	1600
Ala Pro Ala Asp Thr Gly Glu Glu Leu Met Leu Met Ser Ser Thr Pro	
490 495 500	
aca tct acg tca cct gga ccc tac tct cct gcc aaa tct gtt cac tcg	1648
Thr Ser Thr Ser Pro Gly Pro Tyr Ser Pro Ala Lys Ser Val His Ser	
505 510 515 520	
gtg ggc gta ccc gca gta ggg tcc ccc aat tca gcc cag tct ccg gag	1696
Val Gly Val Pro Ala Val Gly Ser Pro Asn Ser Ala Gln Ser Pro Glu	
525 530 535	
tac acc agc ata tcg gcc aca aca gga gct gtt cag tca tat acc tgg	1744
Tyr Thr Ser Ile Ser Ala Thr Thr Gly Ala Val Gln Ser Tyr Thr Trp	
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Ser Leu Thr Tyr Thr Val Thr Thr Ser Gly Gly Ser Pro Thr Glu Pro	
555 560 565	
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Gly Ser Gln Leu Ser Cys Met Arg Gly Gly Pro Ala Leu His Gly Ser	
570 575 580	
tcc tcc gca cac cgg atg cca gtt tac cca cat cgg gat gag cac ggg	1888
Ser Ser Ala His Arg Met Pro Val Tyr Pro His Arg Asp Glu His Gly	
585 590 595 600	
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Tyr Thr Gly Ser Tyr Asn Tyr Ser Ser Tyr Ala Asn Gln His His His	
605 610 615	

gcc att cag agt caa tac tcc agt tta acc cat gaa gca ggg ctg ccc Ala Ile Gln Ser Gln Tyr Ser Ser Leu Thr His Glu Ala Gly Leu Pro 620 625 630	1984
act cct ttg cat tat tcc tca tac cac cgc acc tcc gca cag tat ccg Thr Pro Leu His Tyr Ser Ser Tyr His Arg Thr Ser Ala Gln Tyr Pro 635 640 645	2032
ctc aac agt caa atg tcc aga atg gag tcg tgt cta atg agc ggc tct Leu Asn Ser Gln Met Ser Arg Met Glu Ser Cys Leu Met Ser Gly Ser 650 655 660	2080
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tct gcc aac agc tgt tac tcc agt ccc acc gtc cac gca tcc cgc tac Ser Ala Asn Ser Cys Tyr Ser Ser Pro Thr Val His Ala Ser Arg Tyr 685 690 695	2176
tcc acc gga gac atg tac tcg ccc ctt gcc cca cgc agg aac tct gaa Ser Thr Gly Asp Met Tyr Ser Pro Leu Ala Pro Arg Arg Asn Ser Glu 700 705 710	2224
tac gag cac gca caa cac ttt cca gga ttc gcc tat att aac ggg gag Tyr Glu His Ala Gln His Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu 715 720 725	2272
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 <211> 735
 <212> PRT
 <213> Danio rerio

<400> 10

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Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Ser Lys Arg Phe Ser Ser
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His Ser Ser Ile Gly Asn Ile Ser Asn Asp Glu Asn Glu Glu Lys Glu
 35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp
 50 55 60

Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ile
 65 70 75 80

Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Leu Asp Ser Gln
 85 90 95

Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro
 100 105 110

Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys Tyr His
 115 120 125

Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met
 130 135 140

Tyr Ser Lys Lys Gly Ala Ala Trp Val Asn Glu Thr Gly Lys Lys Glu
 145 150 155 160

Val Thr Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu Gly Thr
 165 170 175

Leu Leu Pro Asp Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser
 180 185 190

Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg Thr His
 195 200 205

Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val
210 215 220

Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His Met Leu
225 230 235 240

Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp
245 250 255

Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr Val Leu
260 265 270

Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe Ala Lys
275 280 285

Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro Glu Asn
290 295 300

Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln Ile Leu
305 310 315 320

Lys Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg Thr Val
325 330 335

Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn
340 345 350

Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met Glu Asp
355 360 365

Ser Arg Glu Asp Gln Arg Arg Leu Ile Ile Gln Leu Tyr Gln Glu Phe
370 375 380

Asp Arg Leu Leu Glu Asp Gln Ser Pro Ile Glu Ala Tyr Ile Glu Trp
385 390 395 400

Leu Asp Ser Met Val Glu Arg Cys Val Val Arg Val Ala Gly Lys Arg
405 410 415

Pro Gly Ser Leu Lys Arg Val Ala Gln Gln Phe Leu Leu Met Trp Ser
420 425 430

Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser Ala Pro
 435 440 445

Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp Tyr Val
 450 455 460

Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn Glu Leu
 465 470 475 480

Met Arg Ala Met Lys Gly Glu Gly Ala Pro Ala Asp Thr Gly Glu Glu
 485 490 495

Leu Met Leu Met Ser Ser Thr Pro Thr Ser Thr Ser Pro Gly Pro Tyr
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Ser Pro Ala Lys Ser Val His Ser Val Gly Val Pro Ala Val Gly Ser
 515 520 525

Pro Asn Ser Ala Gln Ser Pro Glu Tyr Thr Ser Ile Ser Ala Thr Thr
 530 535 540

Gly Ala Val Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val Thr Thr
 545 550 555 560

Ser Gly Gly Ser Pro Thr Glu Pro Gly Ser Gln Leu Ser Cys Met Arg
 565 570 575

Gly Gly Pro Ala Leu His Gly Ser Ser Ser Ala His Arg Met Pro Val
 580 585 590

Tyr Pro His Arg Asp Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr Ser
 595 600 605

Ser Tyr Ala Asn Gln His His His Ala Ile Gln Ser Gln Tyr Ser Ser
 610 615 620

Leu Thr His Glu Ala Gly Leu Pro Thr Pro Leu His Tyr Ser Ser Tyr
 625 630 635 640

His Arg Thr Ser Ala Gln Tyr Pro Leu Asn Ser Gln Met Ser Arg Met
 645 650 655

Glu Ser Cys Leu Met Ser Gly Ser Pro Leu Leu His Ser Ser Pro Val
660 665 670

Thr Pro Arg Trp Pro Asp Val Pro Ser Ala Asn Ser Cys Tyr Ser Ser
675 680 685

Pro Thr Val His Ala Ser Arg Tyr Ser Thr Gly Asp Met Tyr Ser Pro
690 695 700

Leu Ala Pro Arg Arg Asn Ser Glu Tyr Glu His Ala Gln His Phe Pro
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Gly Phe Ala Tyr Ile Asn Gly Glu Ala Thr Thr Gly Trp Ala Lys
725 730 735

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<212> DNA
<213> Homo sapiens

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His Ser Ser Ile Gly Asn Ile Ser Asn Asp Glu Asn Glu Glu Lys Glu
35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp
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Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ile
65 70 75 80

Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Leu Asp Ser Gln
85 90 95

Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro
100 105 110

Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys Tyr His
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                               Met Asn Trp
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gct gcc ttc gga ggg tct gaa ttc ttc atc cca gaa ggc att cag ata      166
Ala Ala Phe Gly Gly Ser Glu Phe Phe Ile Pro Glu Gly Ile Gln Ile
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gat tcg aga tgc cca cta agc aga aat atc acg gaa tgg tac cat tac      214
Asp Ser Arg Cys Pro Leu Ser Arg Asn Ile Thr Glu Trp Tyr His Tyr
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tat ggc att gca gtg aaa gaa agc tcc caa tat tat gat gtg atg tat      262
Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met Tyr
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tcc aag aaa gga gct gcc tgg gtg agt gag acg ggc aag aaa gaa gtg      310
Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys Lys Glu Val
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agc aaa cag aca gtg gca tat tca ccc cgg tcc aaa ctc gga aca ctg      358
Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu Gly Thr Leu
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ctg cca gaa ttt ccc aat gtc aaa gat cta aat ctg cca gcc agc ctg      406
Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser Leu
   85                               90                               95

cct gag gag aag gtt tct acc ttt att atg atg tac aga aca cac tgt      454
Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg Thr His Cys
 100                               105                               110                               115

cag aga ata ctg gac act gta ata aga gcc aac ttt gat gag gtt caa      502
Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val Gln
                120                               125                               130

agt ttc ctt ctg cac ttt tgg caa gga atg ccg ccc cac atg ctg cct      550
Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His Met Leu Pro
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gtg ctg ggc tcc tcc acg gtg gtg aac att gtc ggc gtg tgt gac tcc      598
Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp Ser
                150                               155                               160

atc ctc tac aaa gct atc tcc ggg gtg ctg atg ccc act gtg ctg cag      646
Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr Val Leu Gln
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gca tta cct gac agc tta act cag gtg att cga aag ttt gcc aag caa      694

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Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro Glu Asn Leu	
200 205 210	
cga aac atc aag ttc gaa ttg tcg aga agg ttc tcc caa att ctg aga	790
Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln Ile Leu Arg	
215 220 225	
cgg caa aca tca cta aat cat ctc tgc cag gca tct cga aca gtg atc	838
Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg Thr Val Ile	
230 235 240	
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His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn Val	
245 250 255	
gac ctg aac agc atc acc aag caa acc ctt tac acc atg gaa gac tct	934
Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met Glu Asp Ser	
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cgc gat gag cac cgg aaa ctc atc acc caa tta tat cag gag ttt gac	982
Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln Glu Phe Asp	
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His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile Glu Trp Leu	
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gat acc atg gtt gac cgc tgt gtt gtg aag gtg gct gcc aag aga caa	1078
Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala Lys Arg Gln	
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Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser Ala Pro Ser	
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Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp Tyr Val Leu	
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tac ctg tta gaa tct ctg cac tgt cag gag cgg gcc aat gag ctc atg	1270
Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn Glu Leu Met	
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cga gcc atg aag gga gaa gga agc act gca gaa gtc cga gaa gag atc	1318
Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg Glu Glu Ile	
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Ile Leu Thr Glu Ala Ala Ala Pro Thr Pro Ser Pro Val Pro Ser Phe	

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 Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr
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 Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro
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 Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln
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 Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg
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Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp
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 Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile
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 405 410 415
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 Thr Thr Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val
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Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys
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Val Tyr Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr
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Gly Ser Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro
515 520 525

Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro
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Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg
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Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro
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Val Thr Pro Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr
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Ser Pro Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr
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